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Boring work: Penn State University wormhole sleuth peeks into ancient beetle history





The partially carved woodblock "The Wedding of Mopsus and Nisa" by Bruegel (1566), with actual wormholes. Wormholes reproduced in ancient wood-printed illustrations have revealed the odyssey of European beetles, set against a backdrop of climate change and globalization. In an unusual study released on November 21, biologist Blair Hedges at Penn State University in Pennsylvania looked at art printed with carved blocks of wood, a technique that illustrated millions of books before mechanised printing. Wormholes in prints from northern Europe, including England, the Netherlands, Germany, Sweden and northern France, were small and round, averaging 1.43 millimetres (0.057 inches) across, he found. But prints from Spain, Portugal, Italy and the southern two-thirds of France had bigger holes, averaging 2.3mm (0.09 inches) in width, as well as longer holes and tracks. AFP PHOTO / METROPOLITAN MUSEUM OF ART.



PARIS (AFP).- Wormholes reproduced in ancient wood-printed illustrations have revealed the odyssey of European beetles, set against a backdrop of climate change and globalisation.

In an unusual study released Wednesday, biologist Blair Hedges at Penn State University in Pennsylvania looked at art printed with carved blocks of wood, a technique that illustrated millions of books before mechanised printing.

He poured over dozens of illustrations made in Europe from the Renaissance to the end of the 19th century.

His quest: to count tiny, inky traces of wormholes left in the woodblock by beetle borers.

"These tiny errors or interruptions in the print serve as 'trace fossils'," becoming an indicator of when and where they were made and the species that made them, Hedges said.

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The two kinds of wormhole, said Hedges, point to two species -- the common furniture beetle (*Anobium punctatum*), whose habitat was northern Europe, and the Mediterranean furniture beetle (*Oligomerus ptilinoides*), which lived in southern Europe.

A clear line in temperature divided their habitats, running across northern France, Switzerland and Austria.

Today, though, the picture is different. The two species now broadly overlap, thanks to a warmer climate in Europe, as well as international trade.

"Today, and for the past 100 years, because travel, shipping and furniture transportation tends to spread insects around, we find both species all over northern and southern Europe and elsewhere in the world," said Hedges.

Wormholes occur when beetles lay their eggs in cracks and crevices in the tree or log -- in this case, pear, apple and boxwood, which were the favoured material for woodblock illustrators.

The larvae burrow into the wood, spending three or four years chomping on its cellulose, before they develop into pupae and are transformed into adults.

As beetles, they then burrow upwards to the surface of the wood, and it is this exit hole that forms the wormhole.

Hedges measured the size of more than 3,000 printed wormholes in artwork dating from 1462 to 1899 to provide his unusual "record."

His work, published on Wednesday in the British journal *Biology Letters*, adds another tool for scientists delving into a time in history for which data is scarce. Similar "proxies" are used, for instance, in ice cores, corals and lakeshore sediment.

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